PROPOSED NEW CLAIMS

23. A method for the transmission of data in a synchronous digital hierarchy (SDH) network, comprising the steps of: transmitting to a node of the network a form of data signal from outside the network, converting the signal into a virtually concatenated information structure, and transporting the signal through the network in the virtually concatenated information structure, the converting step including the step of processing a path overhead of the signal, whereby integrity of path overhead information is maintained.

24. The method of claim 23, comprising the step of converting the signal so transported into a signal of the form of the data signal transmitted to the node of the network , the converting step including the step of processing a path overhead of the signal so transported, whereby integrity of path overhead information is maintained.

25. The method of claim 23, wherein the signal transmitted to the network from outside the network is in contiguously concatenated form.

26. The method of claim 23, wherein the data signal from outside the network comprises a virtual container four (VC-4) or virtual container three (VC-3) or an administrative unit three (AU3).

27. The method of claim 26, wherein the path overhead comprises bytes H4, J1 and B3, wherein the VC-4 and VC-3 comprise a plurality of frames, and the step of processing the path overhead includes the steps of using byte H4 for indicating frame sequence within the VC-4 or VC-3, using byte J1 to indicate an order of VC-4s or VC-3s in the virtually concatenated information structure, and correcting, as necessary, error indication information carried in byte B3.

28. The method of claim 27, wherein the transmitting step transmits the data signal in the form comprising four contiguously concatenated VC-4s, and wherein the processing step processes the four VC-4s into the virtually concatenated information structure comprising virtually concatenated VC-4s for transfer across the network.

29. The method of claim 27, wherein the transmitting step transmits the data signal in the form comprising five contiguously concatenated VC-3s, and wherein the processing step processes the five VC-3s into the virtually concatenated information structure comprising virtually concatenated VC-3s for transfer across the network.

30. The method of claim 28, comprising the step of aligning the virtually concatenated virtual containers (VCs) of the virtually concatenated information structure using a buffer.

31. The method of claim 30, comprising the step of controlling the aligning step according to contents of bytes J1 and H4.

32. The method of claim 28, comprising the steps of switching and transmitting the VC-4 or VC-3 frames of the virtually concatenated information structure through the network together in a single synchronous transfer module (STM) or in multiple STMs and via a same route.

33. The method of claim 23, wherein the data signal from outside the network comprises a virtual container two (VC-2) or a virtual container one (VC-1).

34. The method of claim 33, wherein the path overhead comprises bytes V5, J2, N2 and K4, and wherein the step of processing the path overhead includes the step of transferring contents of the path overhead bytes to unused parts of the signal.

35. The method of claim 34, wherein the transmitting step transmits the data signal in the form comprising two or more contiguously concatenated VC-2s or VC-1s, and wherein the processing step processes the VC-2s or VC-1s into the virtually concatenated information structure comprising virtually concatenated VC-2s or VC-1s for transfer across the network.

36. The method of claim 35, comprising the step of aligning the virtually concatenated VCs of the virtually concatenated information structure using a buffer.

37. The method of claim 36, comprising the step of controlling the aligning step according to contents of the path overhead byes transferred to the unused parts of the signal.

38. The method of claim 35, in which the contiguously concatenated VC-2s or VC-1s received from outside the network comprise a plurality of frames in a set sequence, and in which the set sequence of the frames changes while being transported through the network, and comprising the step of re-ordering the frames into the set sequence as required.

39. The method of claim 35, in which the VC-2s and VC-1s comprise a plurality of frames, and the steps of switching and transmitting the VC-2 or VC-1 frames of the virtually concatenated information structure through the network together in a single synchronous transfer module (STM) or in multiple STMs and via a same route.

40. The method of claim 23, comprising the step of recognizing a receipt of the signal in concatenated form by the network.

41. A synchronous digital hierarchy (SDH) network in which data is carried in a virtually concatenated information structure, the network comprising: tributary cards arranged and configured to process signals received in a contiguously concatenated form to convert them into a virtually concatenated form for transfer across the network.

42. The network of claim 41, wherein the tributary cards are arranged and configured to process signals transferred across the network in the virtually concatenated form and to convert them into the contiguously concatenated form.

43. The network of claim 42, wherein the signals in the virtually concatenated form comprise virtual containers (VC), and wherein the tributary cards comprise one or more buffers for aligning said VCs.

44. The network of the claim 41, wherein the tributary cards are configured and arranged to detect the receipt of signals in the contiguously concatenated form by detecting a concatenation indication of the signals received.

~~45. A method for the transmission of data in a synchronous digital hierarchy~~ (SDH) network, comprising the steps of: transmitting to a node of the network a contiguously concatenated data signal from outside the network, converting the signal into a virtually concatenated information structure, and transporting the signal through the network in the virtually concatenated information structure, the converting step comprising the step of processing a path overhead of the signal including the step of using a part of the path overhead to indicate a sequence of frames in the virtually concatenated information structure, whereby integrity of path overhead information is maintained.

46. The method of claim 45, comprising the step of converting the signal so transported into a signal of the form of the data signal transmitted to the node of the network, the converting step comprises the step of processing the path overhead of the signal so transported, and restoring the part of the path overhead used to indicate the sequence of frames in the virtually concatenated information structure, ~~whereby integrity of path overhead information is maintained.~~

47. The method of claim 45, wherein the data signal from outside the network comprises virtual container four (VC-4) or virtual container three (VC-3) or an administrative unit three (AU3).

48. The method of claim 47, wherein the path overhead comprises bytes H4, J1 and B3, wherein the VC-4 and VC-3 comprise a plurality of frames, and the step of processing the path overhead includes the steps of using byte H4 for indicating frame sequence within the VC-4 or VC-3, using byte J1 to indicate an order of VC-4s or VC-3s in a virtually concatenated information structure, and correcting, as necessary, error indication information carried in byte B3.

49. The method of claim 48, wherein the transmitting step transmits the data signal in the form comprising four contiguously concatenated VC-4s, and wherein the processing step processes the four VC-4s into the virtually concatenated information structure comprising virtually concatenated VC-4s for transfer across the network.

50. The method of claim 48, wherein the transmitting step transmits the data signal in the form comprising five contiguously concatenated VC-3s, and wherein the processing step processes the five VC-3s into the virtually concatenated information structure comprising virtually concatenated VC-3s for transfer across the network.

51. The method of claim 49, comprising the step of aligning the virtually concatenated virtual containers (VCs) of the virtually concatenated information structure using a buffer.

52. The method of claim 51, comprising the step of controlling the aligning step according to contents of bytes J1 and H4.

53. The method of claim 49, comprising the steps of switching and transmitting the VC-4 or VC-3 frames of the virtually concatenated information structure through the network together in a single synchronous transfer module (STM) or in multiple STMs and via a same route.

54. The method of claim 45, wherein the data signal from outside the network comprises a virtual container two (VC-2) or a virtual container one (VC-1).

55. The method of claim 54, wherein the path overhead comprises bytes V5, J2, N2 and K4, and wherein the step of processing the path overhead includes the step of transferring contents of the path overhead bytes to unused parts of the signal.

56. The method of claim 55, wherein the transmitting step transmits the data signal in the form comprising two or more contiguously concatenated VC-2s or VC-1s, and wherein the processing step processes the VC-2s or VC-1s into the virtually concatenated information structure comprising virtually concatenated VC-2s or VC-1s for transfer across the network.

57. The method of claim 56, comprising the step of aligning the virtually concatenated VCs of the virtually concatenated information structure using a buffer.

58. The method of claim 57, comprising the step of controlling the aligning step according to contents of the path overhead byes transferred to the unused parts of the signal.

59. The method of claim 56, in which the contiguously concatenated VC-2s or VC-1s received from outside the network comprise a plurality of frames in a set sequence, and in which the set sequence of the frames changes while being transported through the network, and comprising the step of re-ordering the frames into the set sequence as required.

60. The method of claim 56, in which the VC-2s and VC-1s comprise a plurality of frames, and the steps of switching and transmitting the VC-2 or VC-1 frames of the virtually

concatenated information structure through the network together in a single synchronous transfer module (STM) or in multiple STMs and via a same route.

61. The method of claim 45, comprising the step of recognizing a receipt of the signal in concatenated form by the network.

62. A synchronous digital hierarchy (SDH) network in which data is carried in a virtually concatenated information structure, the network comprising: tributary interfaces arranged and configured to process signals received in a contiguously concatenated form to convert them into a virtually concatenated form for transfer across the network, the tributary interfaces comprising means for processing path overheads of the signals including means for using a part of the path overhead to indicate a sequence of frames in the virtually concatenated information structure, whereby integrity of path overhead information is maintained.

63. The network of claim 62, wherein the tributary interfaces are arranged and configured to process signals transferred across the network in the virtually concatenated form and to convert them into the contiguously concatenated form.

64. The network of claim 63, wherein the signals in the virtually concatenated form comprise virtual containers (VC), and wherein the tributary interfaces comprise one or more buffers for aligning said VCs.

65. The network of claim 62, wherein the tributary interfaces are configured and arranged to detect a receipt of signals in the contiguously concatenated form by detecting a concatenation indication of the signals received.

66. A method for the transmission of data in a virtually concatenated information structure comprising a path overhead and a plurality of frames, the method comprising the steps of:

transmitting the data in a frame sequence, and using a part of the path overhead to indicate the frame sequence in the virtually concatenated information structure.

67. The method of claim 66, wherein the path overhead comprises an H4 byte, the method including the step of using the H4 byte for indicating the frame sequence.

68. The method of claim 66, wherein the virtually concatenated information structure comprises virtual containers, and wherein the path overhead comprises a J1 byte, the method including the step of using the J1 byte to indicate an order of the virtual containers in the virtually concatenated information structure.

69. The method of claim 66, wherein the path overhead comprises a B3 byte for providing an error indication, the method including the step of correcting, as necessary, the error indication carried in byte B3.

70. A virtually concatenated information structure for carrying data in a frame sequence, comprising: a plurality of frames, and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.

71. The virtually concatenated information structure of claim 70, wherein the path overhead comprises an H4 byte for indicating the frame sequence.

72. The virtually concatenated information structure of claim 70, wherein the virtually concatenated information structure comprises virtual containers, and wherein the path overhead comprises a J1 byte for indicating an order of the virtual containers in the virtually concatenated information structure.

73. The virtually concatenated information structure of claim 70, wherein the path overhead comprises a B3 byte for providing an error indication.

74. The virtually concatenated information structure of claim 70, wherein the virtually concatenated information structure comprises a virtual container four (VC-4) or virtual container three (VC-3) or an administrative unit three (AU3).

75. The virtually concatenated information structure of claim 74, wherein the path overhead comprises an H4 byte and a J1 byte, and wherein the H4 byte and the J1 byte comprise information for controlling alignment of the virtual containers.

76. The virtually concatenated information structure of claim 70, wherein a data signal from outside a network comprises a virtual container two (VC-2) or a virtual container one (VC-1).

77. A network management system for managing data transfer in a virtually concatenated information structure for carrying data in a frame sequence, comprising: a plurality of frames, and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.

78. A tributary interface for data transmission of a virtually concatenated information structure for carrying data in a frame sequence, comprising: a plurality of frames, and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.

79. A network for the transmission of data in a virtually concatenated information structure for carrying data in a frame sequence, comprising: a plurality of frames, and a path overhead, a part of the path overhead comprising means for indicating the frame sequence in the virtually concatenated information structure.